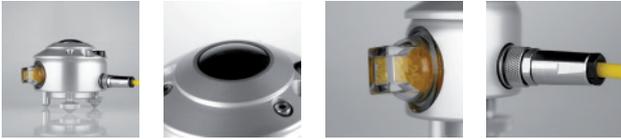


# CGR4



CGR4 is the best pyrgeometer currently available and is the choice for scientific use and in top level solar radiation monitoring networks such as the Baseline Surface Radiation Network (BSRN) of the World Meteorological Organisation.

CGR4 has a specially designed silicon meniscus dome that provides a 180° field of view and has a hard-carbon coating on the outside to smooth the spectral response and provide extra surface protection. Each instrument is supplied with its own temperature response data from -20°C to +50°C in 8 steps of 10°C. A 10 K thermistor internal temperature sensor is fitted; a Pt-100 sensor is optional.

Pyrgeometers use infrared window materials that absorb a large part of the short-wave solar radiation and creates an offset in the readings. It is normally necessary to shade pyrgeometers from direct solar radiation to minimise this heating effect. However, the unique design of CGR4 reduces the dome heating offset to a negligible level (particularly when ventilated), eliminating the need for dome temperature measurements or dome shading.

Specifications	
Spectral range (overall)	4.4 to 50 µm
Spectral range (50% points)	4.5 to 42 µm
Sensitivity	5 to 15 µV/W/m <sup>2</sup>
Impedance	20 to 200 Ω
Expected output range (-200 to 200 W/m <sup>2</sup> )	-3 to 3 mV
Operational irradiance (net)	-250 to 250 W/m <sup>2</sup>
Response time (63%) (95%)	< 6 s < 18 s
Zero offset (b) temperature change (5 K/h)	< 2 W/m <sup>2</sup>
Window heating offset (with 1000 W/m <sup>2</sup> direct solar radiation)	< 4 W/m <sup>2</sup>
Non-stability (change/year)	< 1%
Non-linearity (-250 to 250 W/m <sup>2</sup> )	< 1%
Spectral selectivity (8 to 14 µm)	< 5%
Temperature response	< 1% (-20 °C to +50 °C)
Tilt response (0° to 90° at ±250 W/m <sup>2</sup> )	< 1%
Field of view	180°
Accuracy of bubble level	< 0.1°
Temperature sensor output	10 K Thermistor (optional Pt-100)
Detector type	Thermopile
Operational temperature range	-40 °C to +80 °C
Storage temperature range	-40 °C to +80 °C
Humidity range	0 to 100% non-condensing
Ingress Protection (IP) rating	67

Part number	Instrument
0363900-012	CGR4 Pyrgeometer • 10 K • 10 m cable
0363900-010	CGR4 Pyrgeometer • 10 K • no plug, no cable
0363900-022	CGR4 Pyrgeometer • Pt-100 • 10 m cable
0363900-020	CGR4 Pyrgeometer • Pt-100 • no plug, no cable
0363900-812	CGR4 Pyrgeometer • AMPBOX • 10 K • 10 m cable
0363900-810	CGR4 Pyrgeometer • AMPBOX • 10 K • no plug, no cable
0363900-822	CGR4 Pyrgeometer • AMPBOX • Pt-100 • 10 m cable
0363900-820	CGR4 Pyrgeometer • AMPBOX • Pt-100 • no plug, no cable

Note: AMPBOX is adjusted with offset zero for negative values;  
4 mA = -600 W/m<sup>2</sup>, 16 mA = 0 W/m<sup>2</sup>, 20 mA = +200 W/m<sup>2</sup>

CGR4 Net Pyrgeometer	
A ventilated Net Pyrgeometer can be self-assembled by ordering: 2x CGR4 Pyrgeometer + 1x CMF4 Mountinf Fixture + 2x CVF4 Ventilation Unit	
An unventilated Net Pyrgeometer can be self-assembled by ordering: 2x CGR4 Pyrgeometer + 1x CMF1 Mountinf Fixture + 1x GlareScreen Kit	
Note: CGR4 Net Pyrgeometer can be used with the AMPBOX but it has two individual outputs, so 2x AMPBOX are required	

Part number	Accessories
2643960	Desiccant Refill Pack Contains 10 sachets
0999920-3	Extended Temperature Test for CGR4 Temperature response from -40 °C to +50 °C in 10 steps of 10 °C
See accessories	CVF4 Ventilation Unit Recommended to reduce offsets and frequency of dome cleaning
0362700	CMF1 Mounting Fixture For 1 or 2 unventilated radiometers (1 upper / 1 lower) Diameter 88 mm. Mounting rod 350 mm long x 16 mm ø
0362703	CMF4 Mounting Fixture For 1 or 2 ventilated or unventilated radiometers (1 upper / 1 lower) Length 375 mm, width 280 mm. Mounting rod 350 mm long x 20 mm ø
0369701	CMB1 Mounting Bracket In combination with mounting rod for easy attachment to a pole or a wall
0305722	Glare Screen Kit Sun protection screen for downward facing radiometers, with fixings

Note: It is not necessary to use shading with the CGR4. The effect of direct solar heating is very small and insignificant when the CVF4 is used